California State University Fullerton

CPSC 462



Object Oriented Software Design

Vision and Business Case

for the



Tuffy Flights

System

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Revision History:

| Version | Date | Summary of Changes | Author |
| --- | --- | --- | --- |
| 1.1 | 9/23/2020 | * Initial release * Added to the general timeline, User-Level Goals, Product Overview, and Investment Summary * Added System Context Diagram * Expanded the executive summary to look at long term goals, added to the assumptions and dependencies, and the Go / No-Go Decision, edited System Context Diagram | Nathan Marcos  Jared Castaneda  Jawad Swed |
| 2.0 | 11/9/2020 | * Edited Costs and Pricing to show actual $$$ cost * Edited Schedule Summary to include all phases * Updated table of contents to show the correct pages * Edited the Executive Summary | Nathan Marcos |
| 3.0 | 12/7/2020 | * Edited roles | Jared Castaneda |

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# Executive Summary

Commercial airlines have been important for travelers throughout the past few decades and travelers have always wanted to make traveling convenient. Our goal is to be the customer’s first source of information for flight booking. We envision Titan Booking to be compatible with multiple customer business rules, usable on a wide range of interfaces, and supported by third-party systems. The system will be built on a C++ platform and will be easy and convenient to use.

This document covers the opportunities the system can take advantage. The combined commission from selling flight tickets and hotel advertisements pair up well which is a huge interest to airlines and hotel managers looking to make money. The document also goes into detail about the business our competition, where the system stands in the market, a product overview, and a summary of features.

The project team will go through several iterations until December 2021, as detailed in the schedule summary. As our project grows, we plan to expand the system worldwide to make an approximated $50,000,000 within the next few years. The convenience this system will give to travelers is a great investment because the system does not have a large amount of risks, is easy to create, and the idea behind selling flight tickets and advertising hotels, which is intended to create a whole trip for customers, is very attractive and would make millions of dollars annually.

# Positioning

## Business Opportunity

The Tuffy Flights system will increase revenue for flight airlines through ticket sales and hotels through advertisements. Travelers from all around the world will be interested in booking flights while also finding hotels based on their travel destination.

## Problem Statement

The Tuffy Flights project aims to create a simple flight booking system that enables the customer to do things such as searching for flights based on destination and date, and to view their seating arrangements, flight details, cancel reservations and keep track of their purchases with user accounts. To book a flight, the customer requests to create an account that will keep track of their tickets and payment information. The customer can then search the flight catalog and choose whichever flight they want to book. The customer can choose what seat type they want, such as first class or business class, and if they want a meal for the flight, then pays for the selection. The customer then receives a ticket and a receipt and can now board their specified flight when the time comes. The customer can also reserve hotel rooms based on ads provided by hotels and can check into the hotel when they arrive to their destination.

## Product Position Statement

For travelers who want an easy flight booking experience and a hotel options to help them plan for trips. Travelers include people of all ages from every part of the world.

## Alternates and Competition

There are other flight booking systems such as “Tripadvisor” that focus on just booking flights but may not recommend hotel services. For people looking to only book hotels, they can use systems such as “Trivago” or “Booking.com”.

# Stakeholder Descriptions

## Market Demographics

The market is focused on travelers. The travelers are most likely adults and for youth travelers, their parent(s) or guardian(s) will handle purchasing tickets. We are concentrating on creating an attractive system that makes booking flights effortless and traveling exciting.

## Non-User Summary

### Project Team

The project team works on the project and takes into consideration the continuous and possibly changing requirements of other stakeholders and customers to iteratively develop the system so that it meets end goals.

### Airline Ticket Commissioner

The airline ticket commissioner utilizes the system to make ticket selling quick and simple which leads to an increase in revenue from tickets for their respective airline.

### Hotel Promoter

The hotel promoter commissions advertisements to be put onto the system to gain customer interests and to increase reservation sales.

## User Summary

### Customer

Customers are interested in booking flights and hotels when they travel. Their interests are always taken into consideration when developing

### Ticket Agent

Ticket agents are present at boarding terminals and utilize the system to check in tickets given by customers who are ready to board their flight.

### IT Manager

IT managers maintain the database of flight logs, sales records, and the security of customer information.

## Key High-Level Goals and Problems of Stakeholders

| Stakeholder | High-Level Goal | Priority | Issues / Problems | Interests / Solutions |
| --- | --- | --- | --- | --- |
| Project Team | Clarify requirements throughout iterations | High | Main requirements for demo and important risk factors | Create C++ class responsibility to understand core requirements |
| Airline Ticket Commissioner | Increase ticket sells | High | A good system that traveling customers are attracted to  Record of sales | System provides the basics of a flight reservation system that automatically captures important data |
| Hotel Promoter | Promote hotel and gain customer interest | Medium | A platform to intrigue customers | System allows the use of advertisements |
| Customer | Buy tickets to travel | High | Simple application that is highly reliable | System should run a C++ program without external libraries that is usable on most devices |
| Ticket Agent | Check in travelers | Low | Must enter in ticket data | Database that records flight logs and can accept ticket information |
| IT Manager | Maintain the system | High | Must update flights and protect customers | Database that allows quick updates and communication to user accounts |

## User-level Goals

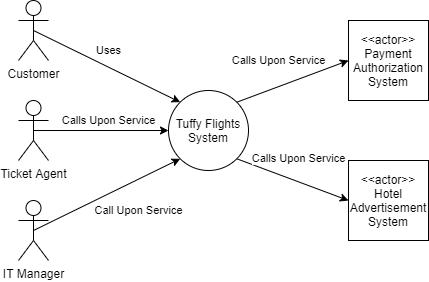
|  |  |
| --- | --- |
| **Customer** | * Create an account and login * Search flight catalog * Purchase tickets * Receive receipts and tickets * Cancel flights and receive refund * Change flight seats * Manage account information |
| **Ticket Agent** | * Scan/check tickets |
| **IT Manager** | * Update flight catalog * Check record sales * Protect customer account information |

# Product Overview

## Product Perspective

The Tuffy Flights system is meant to allow customers to create an account and use it to book flight tickets. They can view their flight information, manage their purchases, and edit their user information. The system also allows ticket agents to scan tickets to allow passengers onto the flight and allows IT managers to update the flight catalog with new flights, cancelled flights, departing flights, and to manage sales records and protect customer information. The system works with 3rd party banking systems for real time accounting.

## System context diagram showing Primary and Supporting Actors



# Summary of Benefits

| Supporting Feature | Stakeholder Benefit |
| --- | --- |
| Functionality, the system will provide an easy to use flight booking system that attracts traveling customers. | -Airline ticket sells revenue increases  -Project team gains commission  -Customers are satisfied with quick service |
| Functionality, the system will be able to have hotel advertisements implemented. | -Hotel promoters gain customer interests and an increase in hotel reservations  -Project team gains commission  -Customers can take advertisement into consideration for travel |
| Real time transaction with 3rd party banking systems | -Accurate sales and commission recording  -Customers are provided receipts |
| Cross platform, the system will be compatible with several types of operating systems | -Customers have more access to use the system |

# Summary of System Features

1. Customer can create an account to track purchases
2. Customer can search, purchase, and cancel reservations
3. Ticket agents can scan tickets into the system for boarding
4. System automatically updates flight log and captures sales
5. System can implement hotel advertisements
6. IT managers can update flight information, manage sales, and request password changes from users

# Investment Summary

## Cost Summary

The system will be created by a team of software engineers who will be paid $100/hour, therefore the cost for developing the system will be approximately $585,000 when paying the engineers for 1 year assuming they work 40 hour weeks. The system must be developed and test on computers which may cost around $5,000 to $10,000. Advertisements are estimated to cost $1,000,000 to create billboards and televised ads across the United States and an additional $3,000,000 to do it globally. Additional management employees will cost approximately $700,000 and in the case of a legal conflict there must be at least $1,000,000 reserved. The cost to put our system on a phone application store may be free to $10, $500 on a website to maintain the domain, or around $100,000 to be installed into a machine to pay for technicians and equipment.

## Pricing Summary

The system generates revenue for the project team by taking 5% commission from ticket sales. Hotel promoters can arrange to promote a hotel and paying an agreed amount of money per advertisement click. Based on constant traveling around the world, we expect to make $15,000,000 from commission. Advertisements can come from hotels around the world which can generate $5,000,000 from sales.

## Schedule Summary

The Inception Phase will last 3 weeks to determine the core requirements of the system. There will be two Elaboration Phase iterations followed, where the project team will implement the core features. Iterations will continue in 3-week intervals until March 2021. Following will be the Construction Phase with similar intervals until December 2021. The Transition Phase will follow with beta tests for about 2 weeks. The final deployment will happen a week after the beta tests are complete to smooth everything out.

### Iteration Plan

High-level schedule showing milestones and proposed features for each iteration for the entire project

| Timeline (dates) | Phase / Iteration | Features & Use Cases Provided | Constraints / Dependencies | Degree of Freedom / Alternatives |
| --- | --- | --- | --- | --- |
| 9/7/2020 | Inception | -Vision & Business Case  -Risk List & Risk Management Plan  -Use Cases  -Supplementary Specifications  -Business Rules  -Glossary | -Determining the feasibility of the application  -Code must be implemented to assign class requirements | -Provide documentation listed  -Determine whether to proceed with the project or not |
| 9/28/2020 | Elaboration Phase Iteration 1: Desktop Demonstration | -Sign up and login  -View flight catalog  -Purchase tickets  -Receive receipt and ticket  -Logout of the system | -Not all alternative use cases will be implemented | -80% of high priority features must be implemented |
| 11/2/2020 | Elaboration Phase Iteration 2 | -Return tickets  -Change ticket seat type  -Change account password | -3rd party systems may not be completely integrated | -90% of high priority features must be implemented |

# Assumptions and Dependencies

The following assumptions and dependencies relate to the capabilities of the Tuffy Flights System

* The system will be able to run on Windows, Linux, and Macintosh.
* The system will continue to be supported and maintained until at least December 2020.
* It is assumed the external systems will not be altered.
* It is assumed that the funding for this project will be paid for by the project team, where project members use their own computer that they purchased.
* The system will be programmed with polymorphic and inheritance classes to handle quick changes if necessary.

# Go / No-Go Decision

Based on research from the project team, the Tuffy Flights system is worth creating because it can generate revenue for a low cost. A flight system is possible to program and can be done so in a reasonable time frame. This system accommodates our goal to make traveling fun and convenient. This system is feasible, and we will be going forward with this project.